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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,864	07/31/2003	Takashi Miyazawa	116747	9076

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EXAMINER

TUROCY, DAVID P

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,864

Applicant(s)

MIYAZAWA, TAKASHI

Examiner

David Turocy

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 31-48 is/are pending in the application.
- 4a) Of the above claim(s) 21-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-11 and 31-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/29/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's amendments, filed 8/29/2005, have been fully considered and reviewed by the examiner. The examiner notes the amendments to claims 1-11 and 13-20, the cancellation of claim 12 and the addition of new claims 31-48. In light of the amendments to the claims the 35 USC 112 2nd paragraph rejection and 35 USC 103(a) rejections to the claims have been withdrawn. Claims 1-11 and 13-48 remain pending with claims 21-30 withdrawn due to a restriction requirement. The indicated allowability of subject matter is withdrawn in view of the newly discovered reference(s) to US Patent 5898443 by Yoshino et al.

Response to Arguments

2. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 40, 41, 45, 46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 40 and 41: The limitation "the formation of the light-emitting layer including a co-evaporation process" appears to be new matter. The examiner could not locate disclosure of such a limitation in the specification. If the applicant states the location of this limitation on the record, then the rejection will be withdrawn.

Claim 45: The limitation "the discharge heat moving along ... Z-coordinate" appears to be new matter. The examiner could not locate a disclosure of such a limitation in the specification, wherein it appears as though the specification provides support for movement in the X and Y direction. If the applicant states the location of this limitation on the record, then the rejection will be withdrawn.

Claim 46: The limitation "the discharge heat rotating during a period" appears to be new matter. The examiner could not locate a disclosure of such a limitation in the specification, wherein it appears as though the specification provides support for movement in the X and Y direction. If the applicant states the location of this limitation on the record, then the rejection will be withdrawn.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 13 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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• Claim 13 includes the limitation “the ejecting the second gasified material being carried out prior to the ejecting the second gasified material” is awkwardly written and the examiner can fully determine the scope of such a limitation. For the purposes of applying art the limitation will be interpreted to read “the ejecting the second gasified material to the second area being carried out prior to the ejecting the first gasified material to the first area” or similar to the wording of claim 9.

• Claim 17 includes the limitation “the plurality of films being formed the pattern”, which is awkwardly written and the examiner cannot determine the scope of such a limitation. For the purposes of applying art the examiner will interpret the claim to require the pattern to be a plurality of films.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

• (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 4-6, 8-9, 13-14, 31-34, 36, 42-45 and 48 are rejected under 35 U.S.C. 102(b) as being US Patent 5898443 by Yoshino et al. hereafter Yoshino.

• Claim 1: Yoshino teaches a method of forming a plurality of films using a plurality of positions of at least one nozzle and the base and ejecting a first gasified material from the at least one nozzle toward the base at each of the plurality of positions

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(Figures, Column 19, lines 47-62). Yoshino discloses detecting ejection failure of the at least one nozzle (Column 3, lines 7-42).

Claim 4: Yoshino teaches of detecting ejection failure of at least one nozzle including ejecting a first gasified material to a preliminary area provided in a preliminary member provided on a predetermined area of the base (Column 3, lines 7-42).

Claim 5: Yoshino discloses detecting ejection failure by inspecting the preliminary film formed on the preliminary ejecting area (Column 3, lines 26-40).

Claims 6: Yoshino discloses visual inspecting the film, which would result in a measurement of the light reflectivity of the film (Column 3, lines 26-40).

Claim 8: Yoshino discloses ejection of more than one gasified material and also discloses detecting the ejection failure by measuring the temperature increase upon ejection of the gasified materials, which would inherently result in detecting ejection failure prior to ejecting the second gasified material (Figure 17, Column 3, lines 7-42).

Claims 9 and 13: Yoshino discloses setting a plurality of relative positions, including a first and second position, by moving both the nozzle and the base wherein the plurality of films is formed in one area, claimed "second area", prior to ejecting in the other area, claimed "first area" (Figures 4-8, and 17). Such an arrangement would result in the first and second gasified material being ejected to the second area prior to ejecting to the first area, which meets the limitation as claimed.

Claim 14: Yoshino discloses detecting offset of ejection, i.e. position deviation, and then performing a recovery process, i.e. a position correction, to correct the offset ejection to proceed to normal ejection process (Column 3, lines 1-7).

Claim 31: Yoshino discloses detecting an ejection failure using a sensor, optical or temperature (Column 3, lines 7-42).

Claim 32: The limitations of this claim are taught by Yoshino as above.

Claims 33-34: Yoshino discloses detecting ejection failure using an optical sensor and also discloses visually inspecting the film, which would require irradiation from a light source, as well as measuring the light reflectivity of the film (Column 3, lines 7-42).

Claims 36, 42, and 43: The limitations of these claims are taught by Yoshino as above, in addition Yoshino discloses scanning the nozzle during ejection of the gasified material (Figures 4-8).

Claim 44: Yoshino discloses a plurality of nozzles in a discharge head.

Claim 45: The limitations of this claim are taught by Yoshino as above, in addition Yoshino discloses scanning (i.e. along the X coordinate) the nozzle during ejection of the gasified material (Figures 4-8).

Claim 48: The process of Yoshino comprises the steps of the claim as discussed above.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 3, 10, 11, 15-20, 35, 37-41 and 47 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Japanese Patent Abstract 2000-323276 by Seki et al,

hereafter Seki in view of Japanese Patent Abstract 06-306181 by Hiraga et al, hereafter Hiraga '181 and further in view of Yoshino.

Seki teaches of a method of manufacturing an electro-optical device by

depositing the electron-transporting layer, hole-transporting layer and light-emitting layer by the ink jet method and then subsequently forming an electrode (abstract). Seki discloses partitions separate pixels from each other are formed in advance on the base and the material is arranged in the partitions (Abstract, Figures).

Seki fails to disclose ejecting the material in a vacuum apparatus that is adjusted to a pressure as claimed.

However, Hiraga '181, teaching of a method of producing an organic optical thin film, discloses controlling the structure at a lower temperature without causing the heat decomposition of the optical material by spraying the material in a high-vacuum vessel, adjusted to a pressure of 10^{-4} torr or below (abstract).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Seki to dispense the coating material in a vacuum chamber as suggested by Hiraga '181 to provide a desirable organic optical film because Seki

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teaches using an ink jet method to dispense an organic optical material and Hiraga '181 teaches a high vacuum provides an organic optical film deposited at a lower temperature which does not result in the heat decomposition of an optical film.

Seki in view of Hiraga '181 fails to disclose the claimed amount of vacuum utilized during the ejection process. However, Hiraga '181 discloses adjusting the pressure of 10^{-4} torr or below, which overlaps and/or encompasses the ranges as claimed. In the case where the claimed ranges "overlap or lie" inside ranges disclosed by prior art a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257 191 USPQ 90. See MPEP 2144.05.

Seki in view of Hiraga '181 fails to disclose detecting ejection failure of a nozzle in the vacuum chamber and the claimed processes of the detection.

However Yoshino discloses a method for detecting failure of an ink jet nozzle during a coating operation as applied to the 35 USC 102(b) rejection above. Yoshino discloses detecting the ejection failure of the nozzle in order to improve the subsequent coating quality (Column 3, lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Seki in view of Hiraga '181 to use the detection of ejection failure as suggested by Yoshino to provide a desirable ink jet coating of a substrate because Yoshino discloses detecting ink jet nozzle failure is known in the art

to provide a coating operation to improve coating quality and therefore would reasonably be expected to effectively improve quality in the production of electro-organic devices manufactured using the ink jet method.

As for claims 40 and 41: Yoshino teaches a method of vaporizing the coating material in the ink jet and discloses heating the coating material to evaporate the coating material to form a bubble in multiple nozzles (Column 19, lines 47-62). Therefore Yoshino teaches of co-evaporation process.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino in view of US Patent 6296354 by Hashimoto, hereafter Hashimoto.

Yoshino teach all the limitations of these claims as discussed above, however Yoshino fails to disclose detecting the light transmissivity of the material to determine ejection failure.

• However, Hashimoto discloses determining the existence of material, during an ink jet printing, by using a reflection photosensor (Column 7, lines 51-57). Hashimoto discloses the degree of transmission of light depends on the light transmitted or reflected off of the material (Column 7, lines 51-57). Therefore Hashimoto reasonably suggests measuring the amount of light transmitted through the material and/or the amount of light reflected off the material are substitutes for each other for determining the material present. Therefore, it would have been obvious to one skilled in the art at the time of the invention to substitute the transmissible sensor, which measure the

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amount of light passing through the material, for the light reflective sensor as taught by Yoshino with the expectation of achieving equivalent results.

12. Claims 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6386667 by Cariffe, hereafter Cariffe in view of Yoshino.

Cariffe teaches a method of providing a coating on a substrate using the ink jet printing method (abstract). Cariffe discloses rotating the nozzle head during deposition (Column 3, lines 35-50). Cariffe fails to disclose ejecting gasified material and sensing ejection failure.

However Yoshino discloses a method for detecting failure of an ink jet nozzle during a coating operation as applied to the 35 USC 102(b) rejection above. Yoshino discloses detecting the ejection failure of the nozzle in order to improve the subsequent coating quality (Column 3, lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Cariffe to use the detection of ejection failure as suggested by Yoshino to provide a desirable ink jet coating of a substrate because Yoshino discloses detecting ink jet nozzle failure is known in the art to provide a coating operation to improve coating quality and therefore would reasonably be expected to effectively improve quality when rotating the nozzle during the production of media.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

David Turocy
AU 1762



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER